



DOCKET NO. 1907.1288

**DECLARATION UNDER 37 C.F.R. 1.131(a)**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of:

Jae-Won LEE

Group Art Unit: 2626

Serial No.: 10/701,494

Filed: November 6, 2003

Examiner: Greg Borsetti

For: **THIRD-PARTY CALL CONTROL TYPE SIMULTANEOUS INTERPRETATION SYSTEM AND METHOD THEREOF**

**Declaration Under Rule 131(a)**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

I, Jae-Won Lee, the Applicant in the above identified patent application declare as follows:

At least as early as July 5, 2002, I prepared an invention disclosure form disclosing the invention recited in the above identified patent application. A copy of the invention disclosure form, along with a statement that the translation of the invention disclosure form is accurate, is attached hereto.

The Declarant further states that the above statements were made with the knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

By: Jae-Won Lee Date: 2009. 7. 1

Jae-Won Lee

## **DECLARATION**

The undersigned, Ju-young Lee, a translator working for Kasan IP & Law Firm located at 6<sup>th</sup> Fl. Youngpoong Bldg., 142 Nonhyun-dong, Gangnam-gu, Seoul 135-749, Republic of Korea, does hereby declare that he is familiar with the English language as a Korean and that the attached is a true English translation of "Invention Specification" for US 10/701,494.

Declared this 13<sup>th</sup> day of June, 2009



By: \_\_\_\_\_  
Ju-young Lee

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By: \_\_\_\_\_  
Ju-young Lee

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Declared this 13<sup>th</sup> day of June, 2009



By: \_\_\_\_\_  
Ju-young Lee

## ● 직무발명신고

[특허법 제39조 제40조 규정에 의거 직무와 관련된 본 발명에 대해 등록받을 수 있는 권리(권리를 회사에 양도합니다.)]

- 직무발명 삼성중합기술원 지적재산팀
- 접수부서
- 발명명칭 전화를 이용한 3자 통화 방식의 자동통역 시스템 및 방법
- 과제명
- 키워드
- 자동통역

## ● 기술적 내용의 평가

구 분			평 가 내용		
발명구분	● 자체발명	○ 산학협동 ○ 용역개발			
개발단계	● 아이디어	○ 향후개발과제	○ 상품기획	○ 표준화기획	○ 설계검증 ○ 양산검증 ○ 기 타
공표사실	공표(공표예정)일: -	공표국가 및 단체: -	공표방법: -		
긴급출원	○ Yes	● No	(긴급출원사유)		

- 출원사  전자  전기  SDI  코닝 외부공동개발:

## ● 발명자인적사항

No.	성 명	이 름	소속부서(기관)명	대표	지분(%)	주 소 (집)	영문성명	한국성명
1	이영 범		HCL LAB	-	25		Lee Yong Beom	李榮範
2	김정 수		HCL LAB	-	25	온마이아파트 13동 201호	KIM JEONG SU	金正壽
3	정지 선		HCL LAB	-	25	상현동 현대7차아파트 506동 901호	JUNG JI SEON	鄭地善
4	이재 원		HCL LAB	•	25	팔달구 영통동 984-9 105 호	L JAE WON	李在原
			690310-1001540	서울 강남구 삼성2동 11번지 롯데캐슬 프레미어 APT 102동 1001호				

## ● 직무발명신고파일

파일명	파일설명
이자원(2002).ppt	자동통역 파일포인트 자료

## ● 직무발령결재

결재주체	결재일자	결정	의견
부서장(PM)	이재원	2002/07/05	○승인 ○반려
직무발령 전형일자 관리	2002/07/05	부서장(PM) 승인일	2002/07/05

## ● 직무발령 접수번호 : RA-200207-003-1

## ④ 수신문서보기

對外秘

## ◆ 기본 항목

접수번호	RA-200207-003-1	출원번호	P2002-0068580	등록번호	P0485909
접수일자	2002/07/08	출원일자	2002/11/06	등록일자	2005/04/19
관리소속	RXB) HCI랩 과거건			발명등급	A급
■ 명세서담당자	이준영	전자 담당자	김지훈	진행상태	41)등록
■ 사무소 번호	SRP020007	■ 선행조사자	-		
발명명칭	3자 통화 방식의 자동 통역 시스템 및 방법				

## ◆ 발명자 관리

성명	영문	한문	주민번호	전화번호	H.P
대표	사내외 구분	부서명 (현재)			지분(%)
주 소					재직구분
이재원	LEEJAEWON	李在原	690310-1001540	82-031-280-1730	017-340-924:
Y	사내	Intelligent Systems그룹(기술원)			25
서울 강남구 삼성2동 11번지 롯데캐슬 프레미어 APT 102동 1001호					재직
이영범	LeeYongBeom	李榮範	611215-1024512	82-31-280-1710	016-9885-3963
-	사내	3D Graphics&VR그룹(기술원)			25
서울 강남구 대치2동 은마아파트 13동 201호					재직
김정수	KIMJEONGSU	金正壽	640518-1347727	-031-280-1720	010-9147-6817
-	사내	Sound Processing그룹(기술원)			25
경기 용인시 상현동 현대7차아파트 506동 901호					재직
정지선	JEONGJISEON	鄭址善	680303-1454918	82-0331-280-1726	-
-	사내	종합기술원			25
경기도 수원시 팔달구 영통동 984-9 105 호					퇴직

## ◆ 수신문서

발생단계/ 문서종류	위임) 일반	발생일자	2002/07/12	마감일자	-
US OA Type	-	Revision type	-		
제 목	전화를 이용한 3자 통화 방식의 자동통역 시스템 및 방법				
의견	-				

파일명	파일설명
직무발명신고서	-

## &gt;&gt; 국문사내명세서

지정일	-	사내작성	-	사내검수	-
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자체작성 초안1차통보일	-	자체작성 검토통보일	-
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Cl

Basic Items

No:	RA-200207-003-1	Filing No:	P2002-0068580	Registration No:	P0485909
Date	2002/07/08	Filing Date	2002/11/06	Registration Date	2005/04/19
Department	RXB) HCI lab			Invention Level	A
Person in charge of specification	Lee Jun-Young	Person in charge of electronics	Kim Ji-Hoon	Current State	41) Registered
Ref. No.	SRP020007	Advanced Tech. Researcher	-		
Title of Invention	Automatic interpretation system and method of tripartite conversation method				

Inventors' Information

Name	English	Chinese	ID No.	Phone No.	Mobile No.
Representative	In the firm or outside the firm	Department (current)			Share (%)
Address					Working status
Lee Jae-Won			690310-1001540		
Y	In the firm	Intelligent System group			25
Lotte Castle Premier APT 102-1001, Samsung 2 dong 11, Gangnam-gu, Seoul					In office
Lee Young-Beom			611215-1024512		
-	In the firm	3D Graphics & VR group			25
Eunma APT 13-201, Daechi-dong, Gangnam-gu, Seoul					In office
Kim Jeong-Su			640518-1347727		
-	In the firm	Sound Processing group			25

Hyundai 7 cha APT 506-901, Sanghyun-dong, Yongin-si, Gyunggi-do					In office
Jeong Ji-Seon			680303- 1454918		
-	In the firm	SAIT			25
Youngtong-dong 984-9 105 ho, Paldalgu, Suwon-si, Gyunggi-do			Retired		

#### Received Documents

Document type:	Assignment) Common	Generated Date:	2005/10/13	Due Date:	
Title	Automatic interpretation system and method of tripartite conversation method using a phone				
Comments					

Filename:	File Description
Invention Report:	

Invention Report



<<According to Articles 39 and 40 of Korean Patent Law, I assign to the company the right to be registered on the present invention related to my duty.>>

The present invention will be received by Intellectual Property Team (Suwon) of Samsung Advanced Institute of Technology.

Title  
Automatic interpretation system and method of tripartite conversation method using a phone

Work Name  
Eliza  
 Work Code  
2001-047

Core Technology  
(code) name  
Automatic interpretation

Evaluation of Technical Content

Division	Individual	Academic-industrial cooperation	Outsourcing	Joint
Invention	<input checked="" type="checkbox"/>			
Division	Invention			

Personal Information of Inventors					
No.	Name	Department	Representative	Share (%)	
		ID No.			Address
1	Lee Young-Beom	HCL_LAB 611215-1024512	Eunma APT 13-201, Daechi-dong, Gangnam-gu, Seoul	25	
2	Kim Jeong-Su	HCL_LAB 640518-1347727	Hyundai 7 cha APT 506-901, Sanghyun-dong, Yongin-si, Gyunggi-do	25	
3	Jeong Ji-Seon	HCL_LAB 680303-1454918	Youngtong-dong 984-9 Gyunggi-do	25	105 ho, Paldalgu, Suwon-si, Gyunggi-do
4	Lee Jae-Won	HCL_LAB 690310-1001540	Y	25	Lotte Castle Premier APT 102-1001, Samsung 2 dong 11, Gangnam-gu, Seoul

Invention Report File

Filename	File Description
Lee Jae-Won.ppt	Powerpoint data of Automatic interpretation

Invention Proceedings

Report Date	2002/07/05	Approval Date by PM	2002/07/05	Receipt Date by Patent Department	2002/07/

Invention No. : RA-200207-003-1

# 전자화를 이용한 3자 통화 방식의 자동통역 시스템 및 방법

이재원, 김정수  
이영범, 정지선

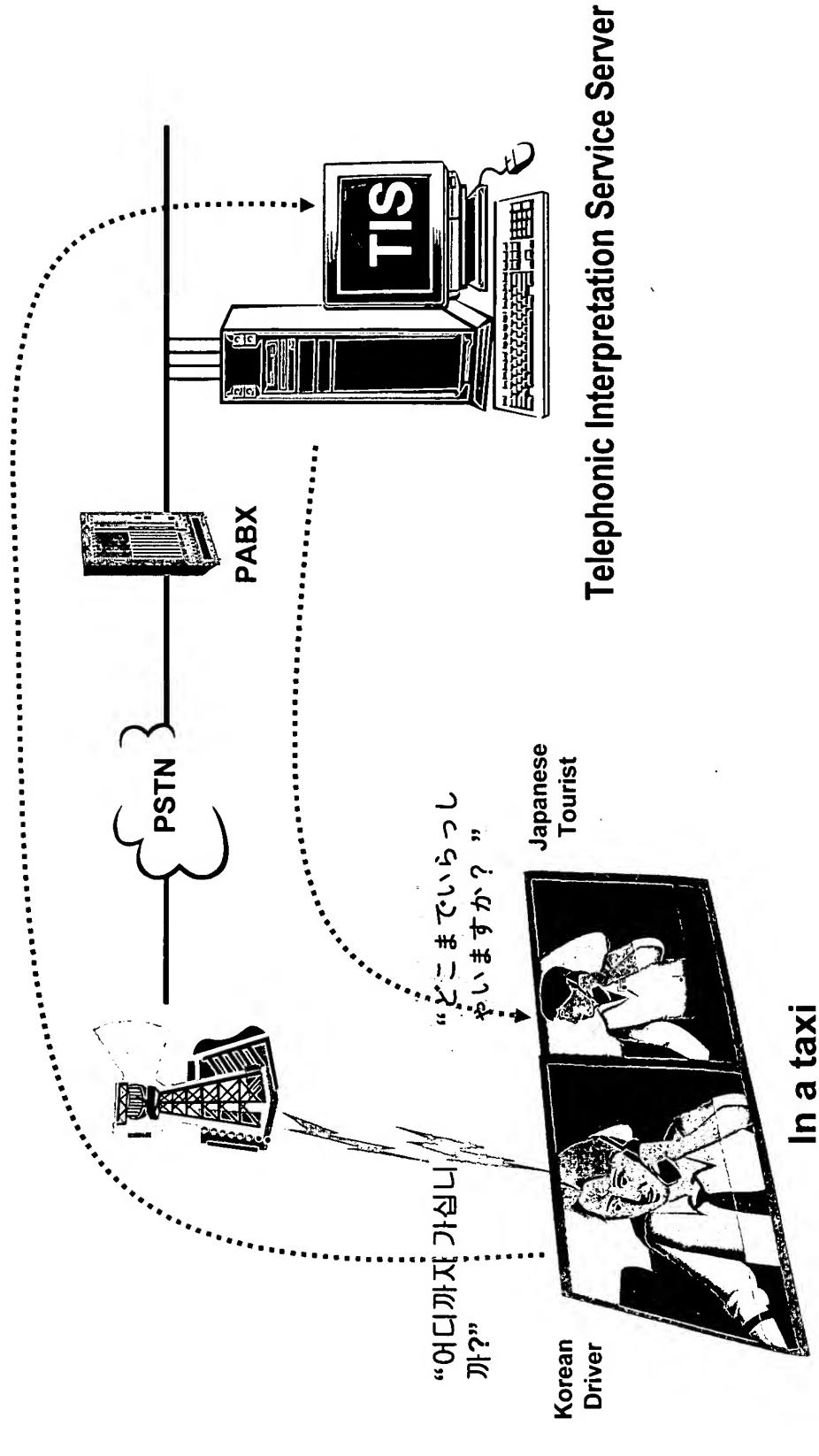
'02. 7. 8

ELIZA Project, HCI Lab



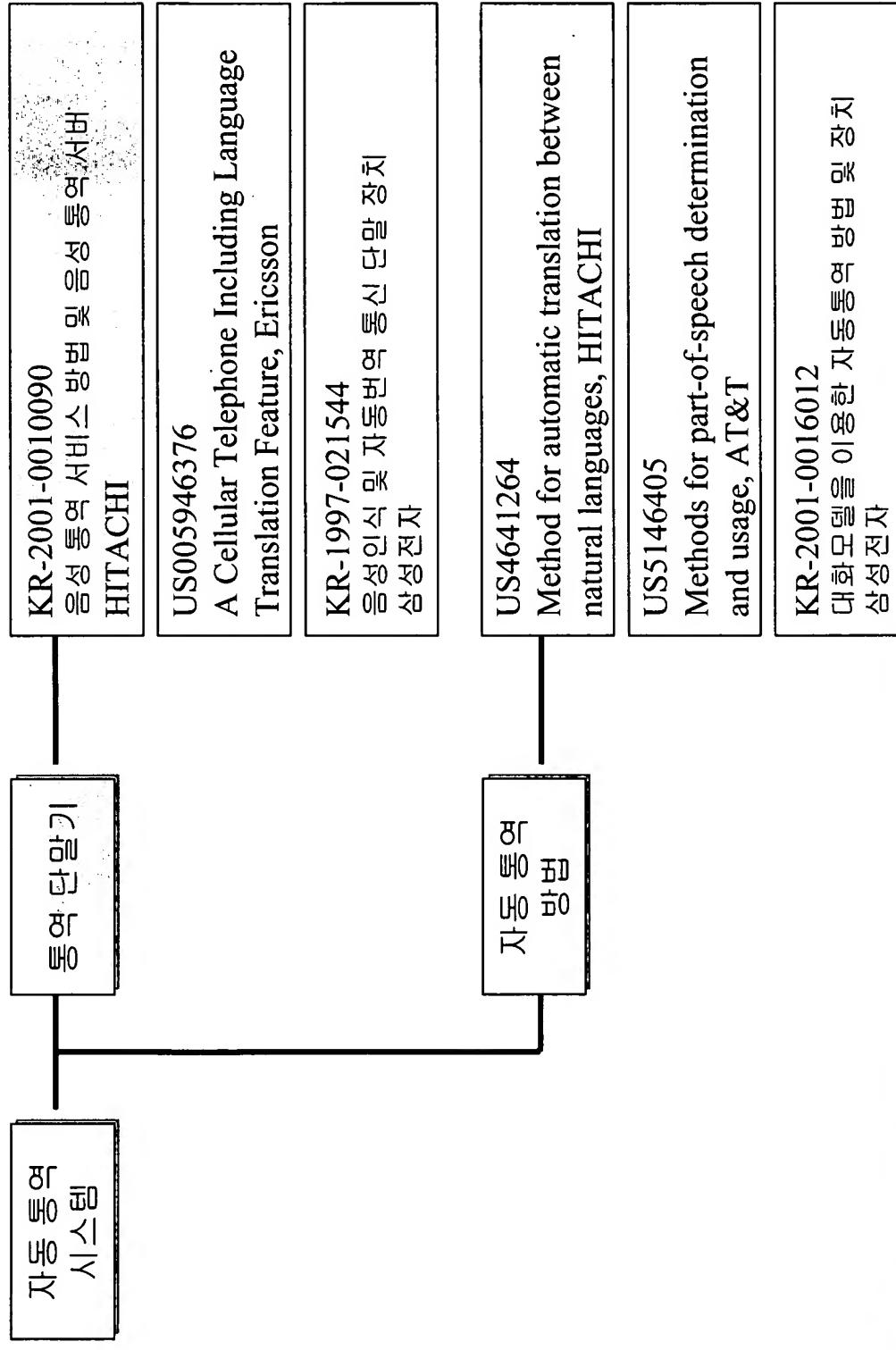
# 자동통역 시스템 개요

## ■ 전화를 이용한 3자 통화 방식의 자동통역 시스템



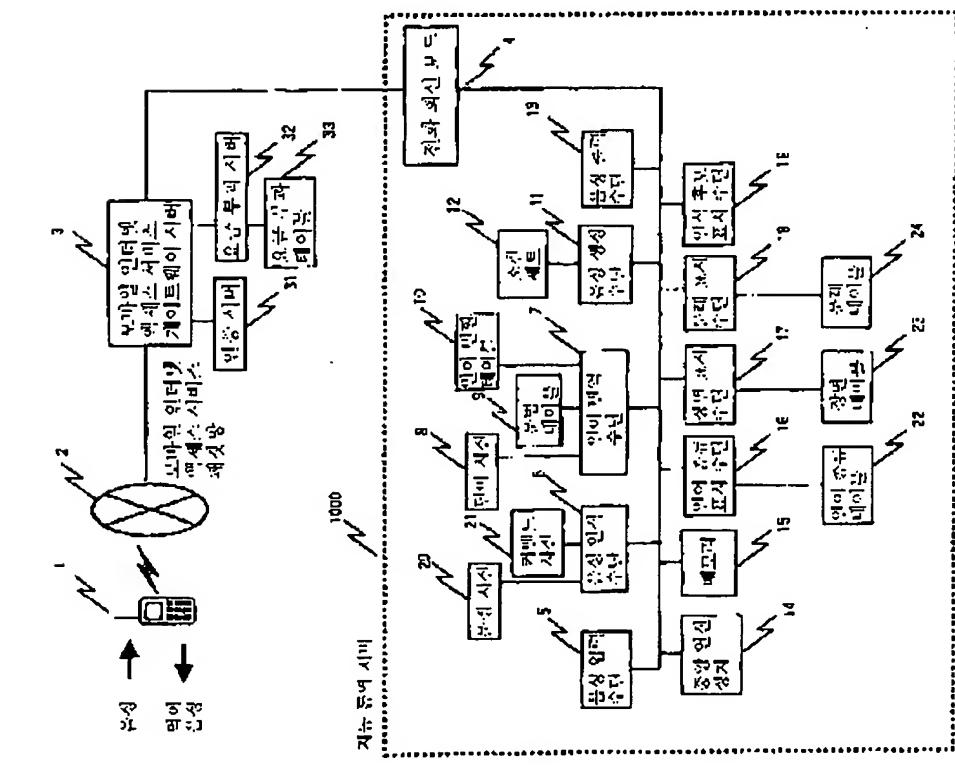
# 전쟁 특허 분석 (1/2)

## ■ Patent Map

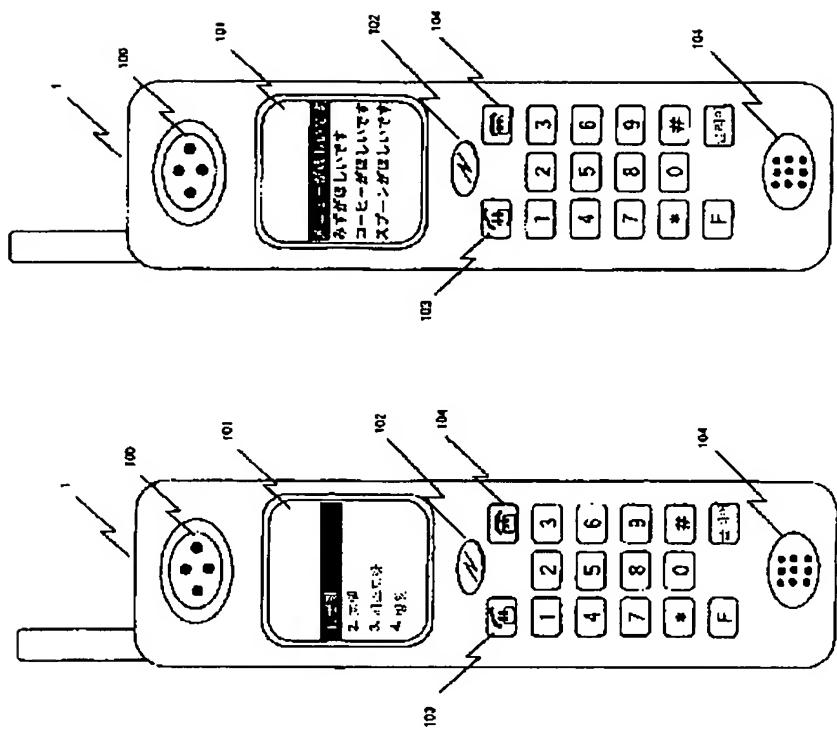


# 전 행 특허 분석 (2/2)

## ■ 음성 통역 서비스 방법 및 음성 통역 서버



도 176



도 177

# 문제점 및 해결 방안

## ■ 실행 기술의 문제점

- 하나의 단말기를 이용, 대화 보다는 단방향의 통역 위주
- 전용 단말기 필요 : 외부 스피커를 내장한 스피커 폰 사용

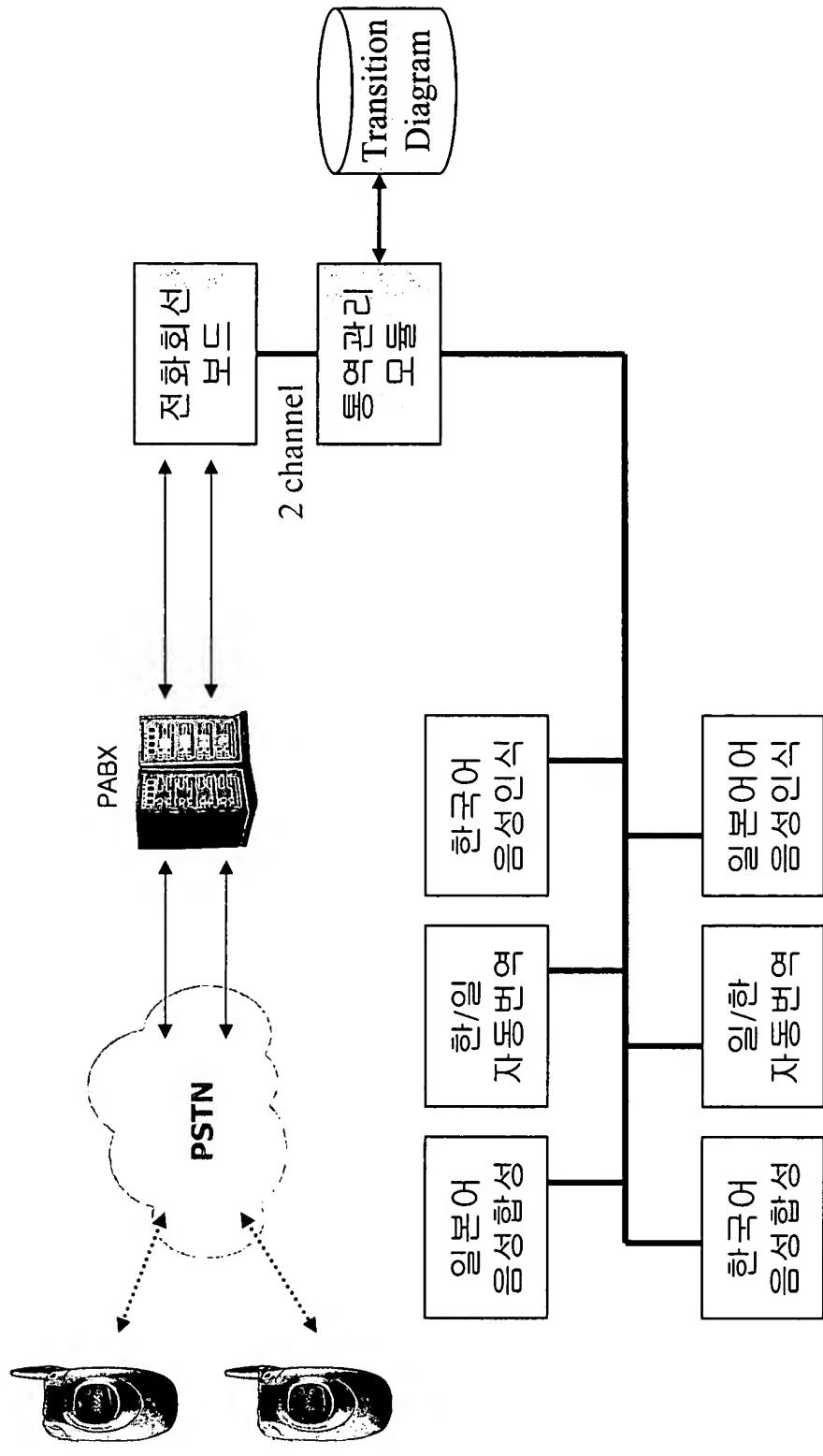
## ■ 해결 방안

- 3자 통화 방식의 통역 시스템 도입, 전용 단말기 불필요.
- 자동통역 서버(CTI)가 두 채널을 이용하여 대화를 Control
- 통역 결과는 상대방 전화 채널로 전달



# 3자 통화 방식의 자동통역 시스템 (1/2)

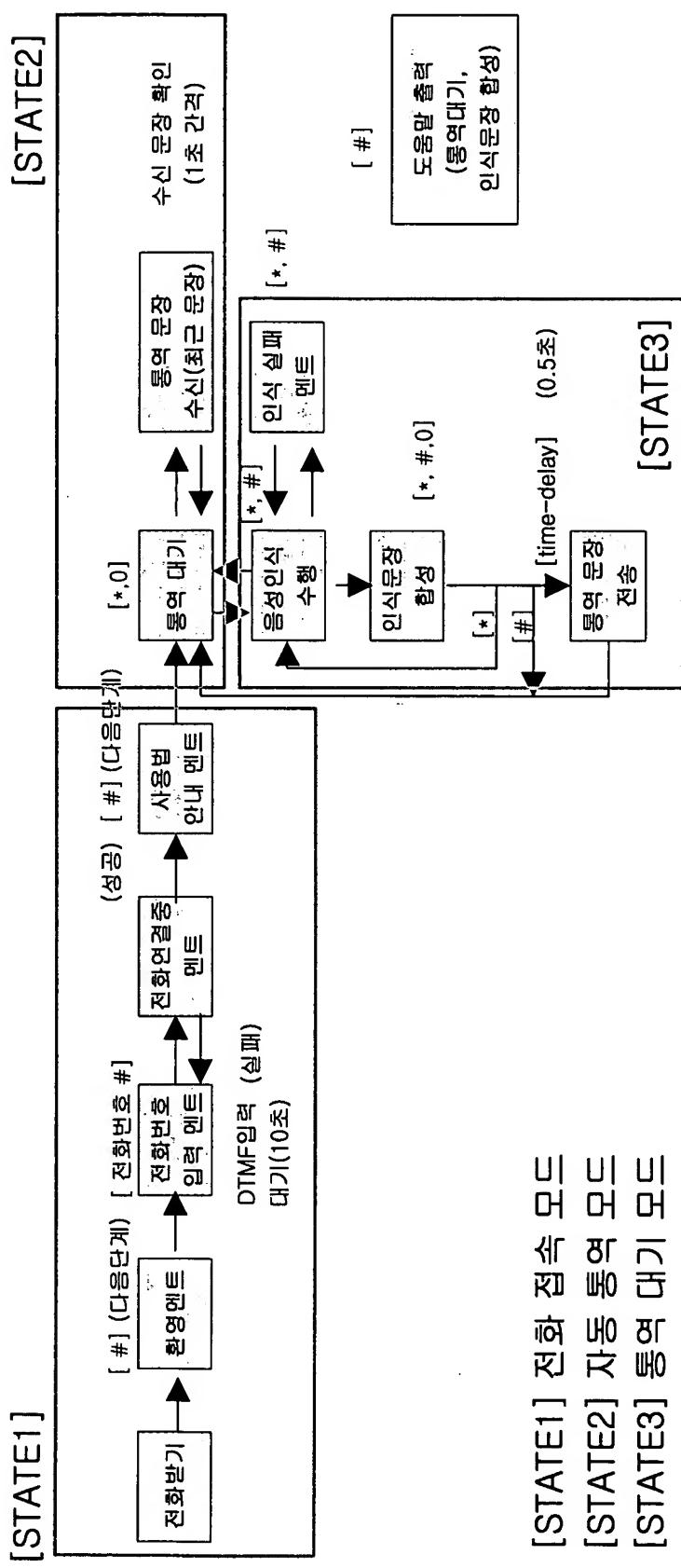
## ■ System Configuration



# 3자 통화 방식의 자동통역 시스템 (2/2)

## ■ Dialogue Management Method

- Transition Diagram을 이용한 Dialogue Control



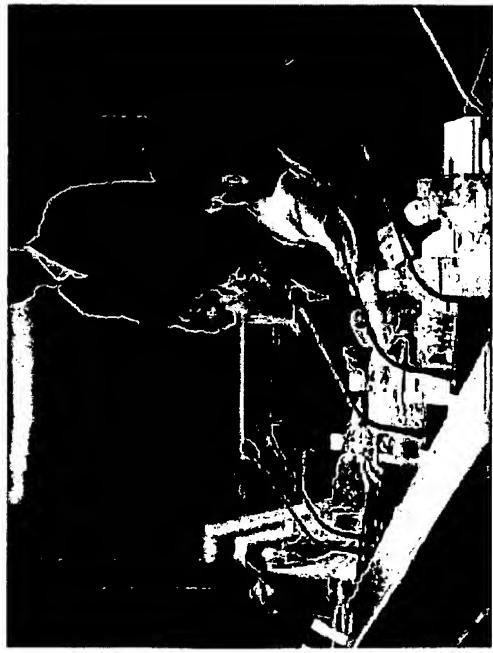
- STATE1] 전화 접속 모드
- STATE2] 자동 통역 모드
- STATE3] 통역 대기 모드

- 두 채널을 이용한 Concurrent Dialogue Processing



# 실시 예 및 효과 (2/2)

## ■ 양방향 자동통역 시스템 실시 예



- 발명의 효과
  - 전용 단말기 불필요
  - 양방향의 Natural Dialogue 가능

# 정구형

## ■ 독립형

- 전화망을 이용한 3자 통화 방식의 자동통역 시스템

- 대화관리 모듈 : 두 채널을 Open하고 번역 결과를 Switching 하여 전달
- 음성인식 모듈 : 한국어/일본어 음성인식
- 자동번역 모듈 : 한/일, 일/한 자동통역
- 음성합성 모듈 : 한국어/일본어 음성합성

## ■ 종속형

- Dialogue Management Method

- 양방향 두 채널을 이용한 Concurrent Dialogue Management
- State Transition Diagram을 이용한 대화 제어

# Automatic interpretation system and method of tripartite conversation using a phone

Lee Jae-Won, Kim Jeong-Su  
Lee Young-Beom, Jeong Ji-Seon

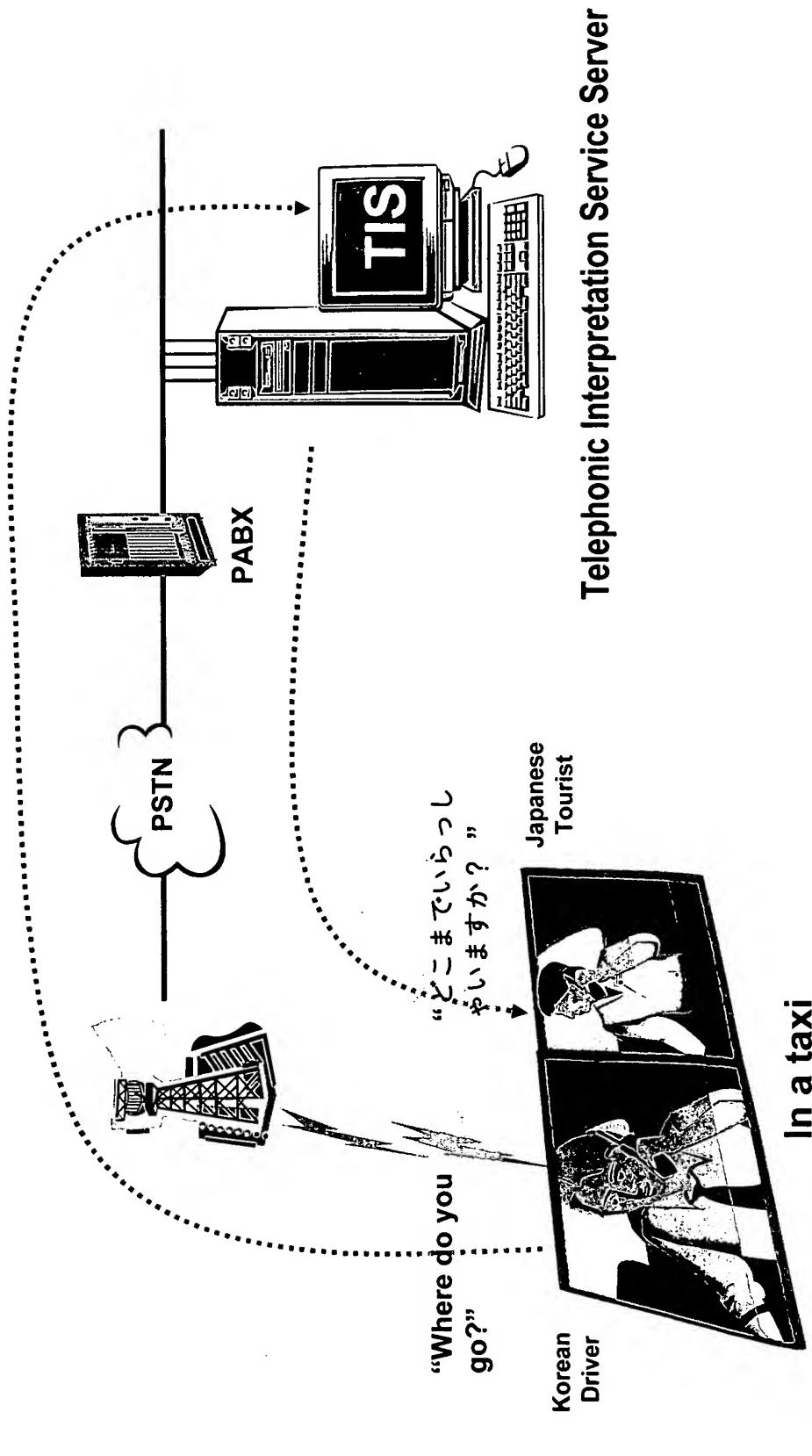
'02. 7. 8

ELIZA Project, HCI Lab



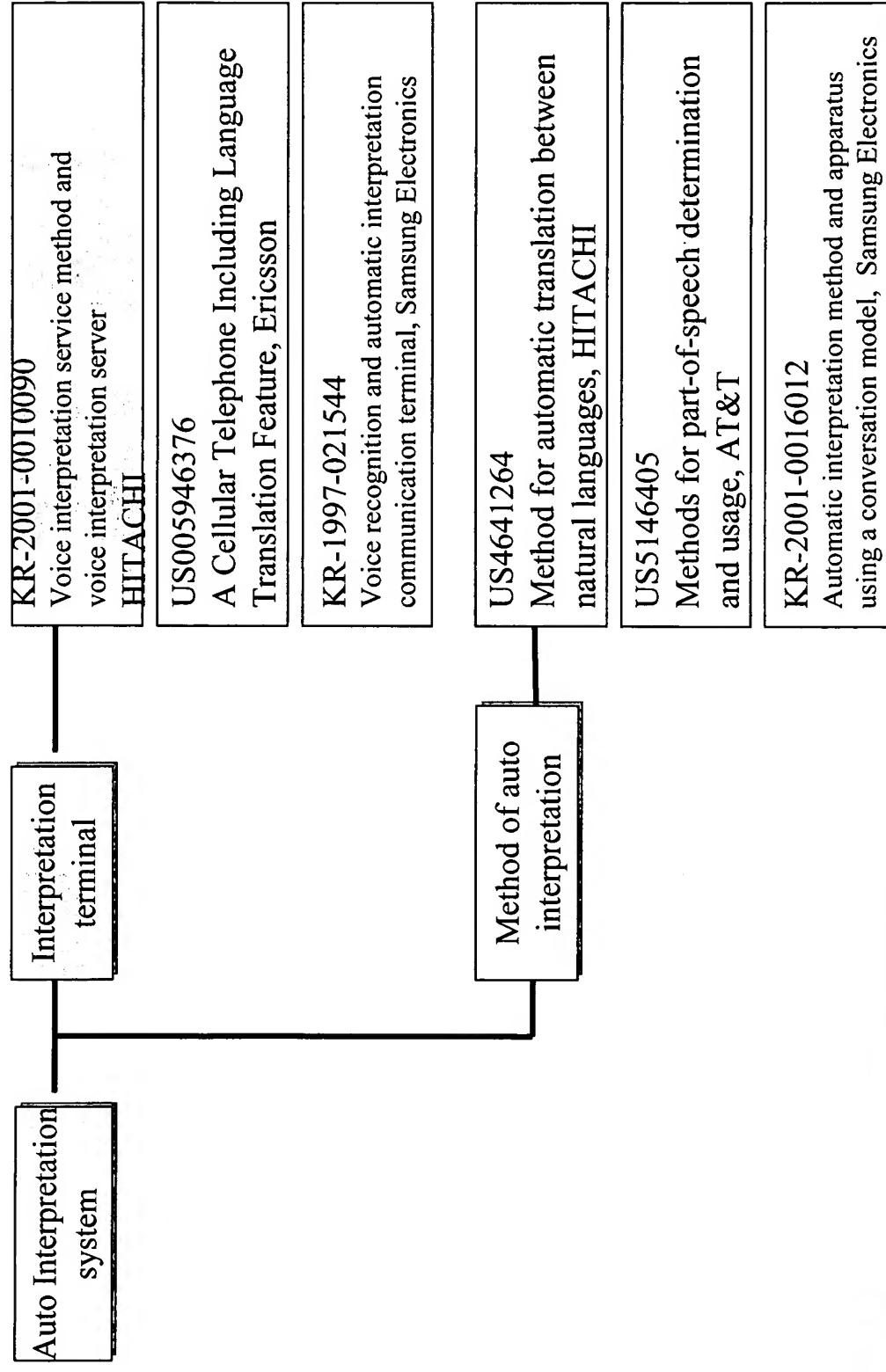
# Outline of Automatic interpretation system

## ■ Automatic interpretation system of tripartite conversation using a phone



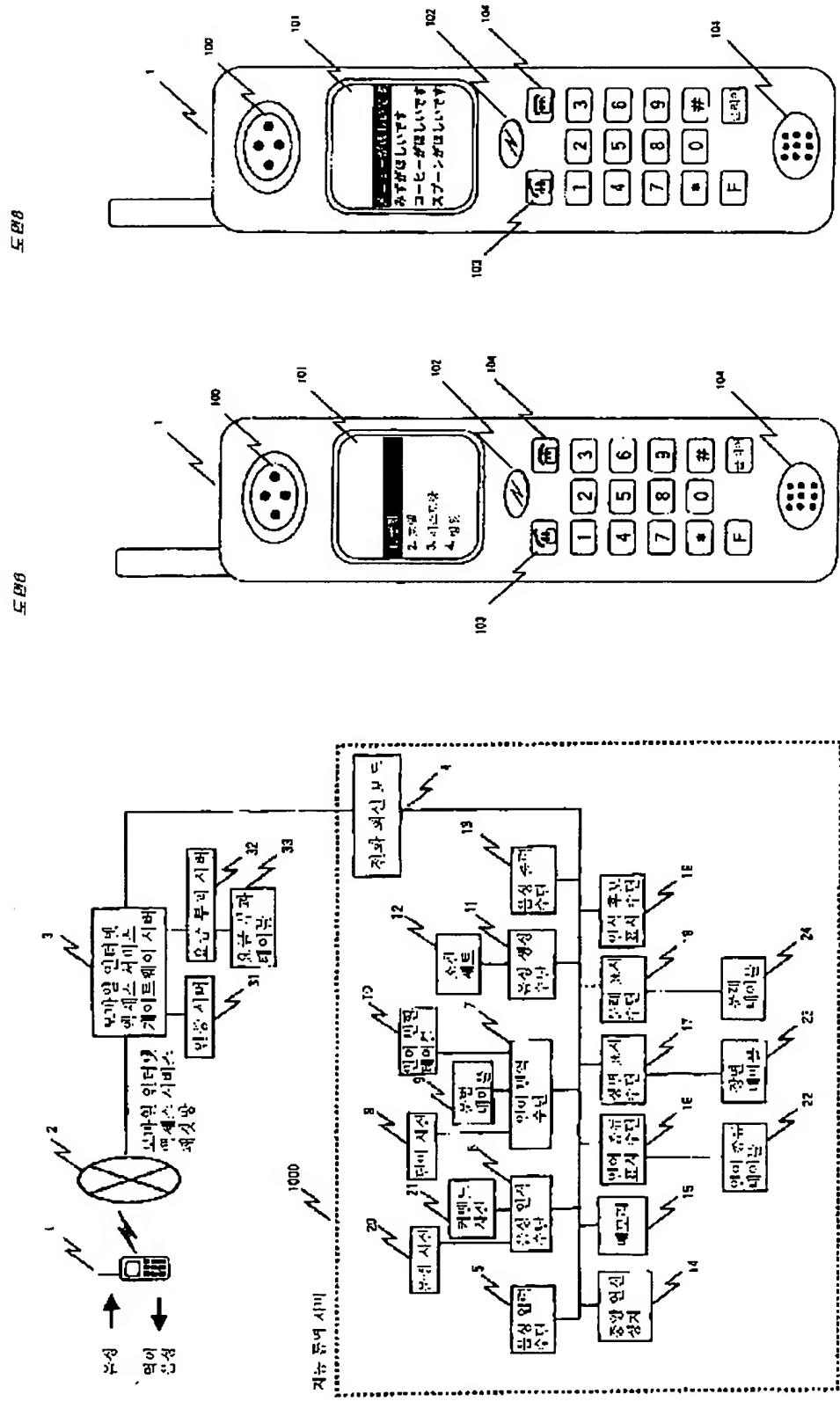
# Analysis of Prior Art (1/2)

## ■ Patent Map



# Analysis of Prior Art (2/2)

## ■ Voice interpretation service method and voice interpretation server



SAMSUNG

삼성종합기술원 HCI Lab.

# Problems and Solutions

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## ■ Problems of Prior Art

- Centering on one-sided interpretation rather than a conversation by using one terminal
- Need for a dedicated terminal: using a speaker phone where an external speaker is mounted

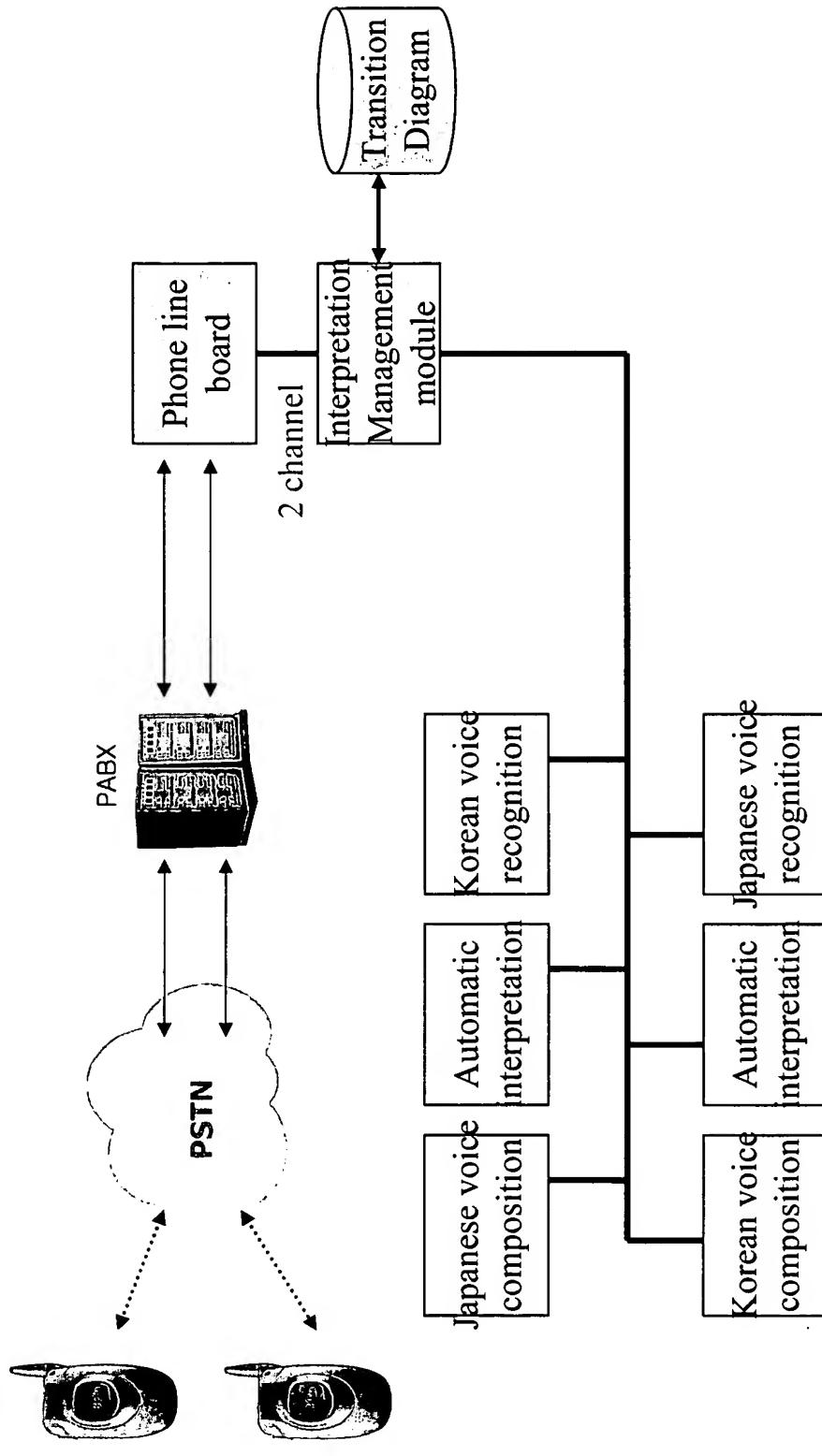
## ■ Solutions

- Introduction of tripartite conversation method; no need for a dedicated terminal.
- Automatic interpretation server controls conversation using two channels.
- The result of the interpretation is transmitted to the other phone channel.



# Automatic interpretation system of tripartite conversation method (1/2)

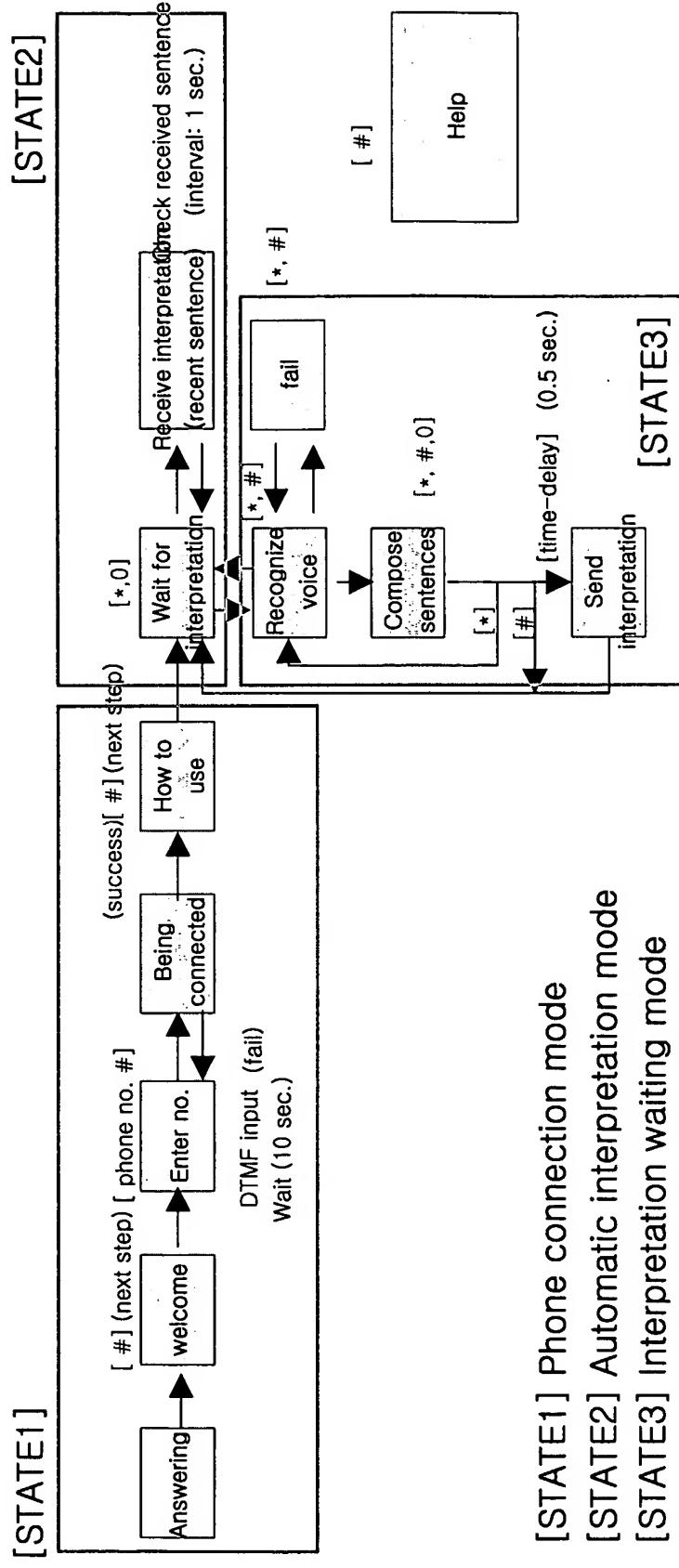
## ■ System Configuration



# Automatic interpretation system of tripartite conversation method (2/2)

## ■ Dialogue Management Method

- Dialogue Control using translation diagram



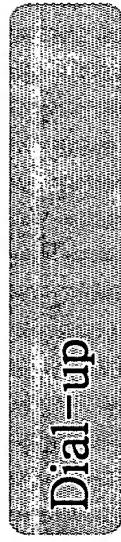
[STATE1] Phone connection mode

[STATE2] Automatic interpretation mode

[STATE3] Interpretation waiting mode

- Concurrent Dialogue Processing using two channels

# Embodiments and effects (1/2)



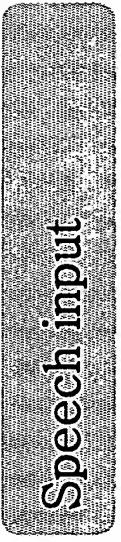
Dial-up



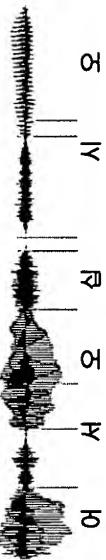
Guidance



Start service



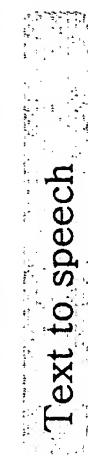
Speech input



Speech recognition



Language translation



Text to speech



Interpreted speech

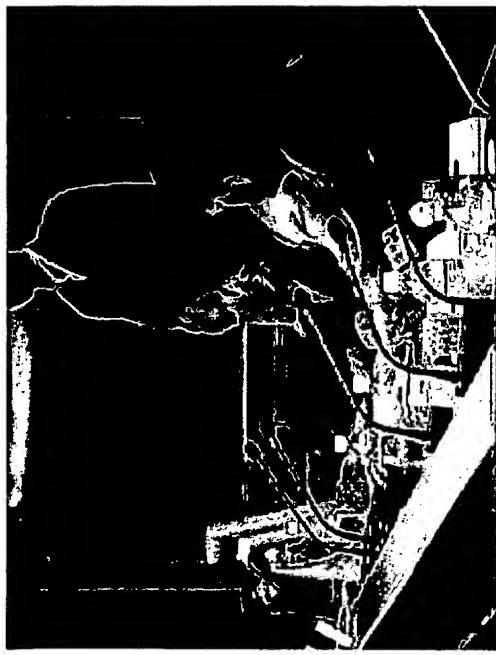


Samsung HCI Lab.

“안녕하세요. 한일 자동통역 시스템입니다.”  
“こんにちは。韓日自動通譯システムです。”

# Embodiments and effects (2/2)

- Example of two-way automatic interpretation system



- Effects of Invention

- No need for a dedicated terminal
- Two-way natural dialogue is possible.

# Claims

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## ■ Independent claims

- Automatic interpretation system of tripartite conversation method using a phone network
  - Conversation management module: Opening two channels and switching the result of interpretation
  - Voice recognition module: Voice recognition of Korean/Japanese
  - Automatic interpretation module: Korean/Japanese, Japanese/Korean automatic interpretation
  - Voice composition module: voice composition of Korean/Japanese

## ■ Dependent claims

- Dialogue Management Method
  - Concurrent Dialogue Management using two-way two channels
  - Controlling of conversation using State Transition Diagram